

## ABSTRACT

Information technology and computer currently develop very rapidly. This is because the increasing number and distribution of digital data either in the form of image, sound, or character. The longer the capacity of the data is usually transferred to the size of the increase, so will require more bandwidth, which is also large. Because of the large bandwidth required the cost to send a digital data will be greater, there is a method to be able to send data with a smaller bandwidth without reducing the quality of the data. This method is called the compression method.

There are 2 types of compression method that is lossless and lossy. Lossless is a compression method that zoom size without distortion, while lossy compression is with some distortion in the original image. Fractal methods and Discrete Cosine Transform (DCT) is a digital data compression method that includes the lossy. Merging Fractal method and image processing in the DCT is expected to be able to get quality digital image that has become more maximum compressed. DCT has the ability to be able to eliminate the inter-pixel digital image of the excessive and they information for efficient high-frequency, while the Fractal leaders to form a long-range correlation in the digital image and able to work efficiently in low-frequency representation. Merging the two methods can work optimally, and able to reduce the distortions that the human eye is not aware of the distortions in the digital image.

At the end of this task will be analyzed simulated and compression techniques using the method between Fractal and DCT. After experiencing a process of consolidating compression using the method above, the digital image is not experiencing a significant decrease in quality that is still capable accepted by the human eye as a digital image of the original. From the results of the simulation of digital imagery is compressed average value Peak Signal to Noise Ratio (PSNR) 32 dB. Therefore, DCT and Fractal can be combined to get optimal results.

**Keywords:** *digital image, DCT, Fractal, Compression*